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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,724	08/25/2005	Stephane Cochet	264300US6PXCT	8508

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EXAMINER	
NGUYEN, TU MINH	
ART UNIT	**PAPER NUMBER**
3748	

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/522,724	COCHET ET AL.	
	Examiner	Art Unit	
	Tu M. Nguyen	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. An Applicant's Amendment filed on August 16, 2006 has been entered. Claims 11 and 24 have been amended. Overall, claims 11-25 are pending in this application.

Drawings

2. The formal drawings filed on August 16, 2006 have been approved for entry.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 11-18 and 21-25 are rejected under 35 U.S.C. 102(a) as being anticipated by Schnaibel et al. (WO 02/08594 A1) (see U.S. Patent 6,862,880 for the equivalence in English).

Re claims 11 and 24, as shown in Figures 1-2, Schnaibel et al. disclose a method and a device for control of operation of a nitrogen oxides trap (12') for an internal combustion engine (1) running on a lean mixture, wherein purging of the nitrogen oxides trap is commanded periodically, and a first oxygen sensor (14) is disposed in an exhaust pipe downstream from the nitrogen oxides trap, the method comprising:

- observing evolution of a meaningful signal representative of a signal (line 31) delivered by the first oxygen sensor (output voltage u(v) of the first oxygen sensor (14) depicted as line 31 is monitored); and

- using an increase of the meaningful signal from a first plateau of substantially constant level, reached following a variation subsequent to a changeover of the engine from running on a lean mixture to running on a rich mixture, to a second plateau of substantially constant level as an indicator to command an end of purging (see lines 8-22 of column 8 in U.S. Patent 6,862,880).

Re claims 12 and 25, in the method and device of Schnaibel et al., a second oxygen sensor (13) disposed upstream from the nitrogen oxides trap is additionally used to deliver a reference signal (line 30) relative to which the evolution of the signal (line 31) delivered by the first oxygen sensor is compared to deliver the meaningful signal (see Figure 2).

Re claims 13-14, in the method of Schnaibel et al., the increase of the meaningful signal is detected by applying filtering of a first derivative of the meaningful signal and by comparing the filtered first derivative with a predetermined threshold (see lines 8-12 of column 8 in U.S. Patent 6,862,880).

Re claims 15-16, in the method of Schnaibel et al., the increase of the meaningful signal is detected by applying filtering of a second derivative of the meaningful signal and observing passage of the filtered second derivative through zero in decreasing threshold (see lines 13-18 of column 8 in U.S. Patent 6,862,880).

Re claims 17-18, in the method of Schnaibel et al., the increase of the meaningful signal is detected by taking a difference between an instantaneous value of the meaningful signal and a

sliding mean of the meaningful signal, and by comparing the difference with a threshold (a gradient is obtained by computing a difference between an instantaneous value at a current time step and a value at a previous time step or a mean value of several data points at several previous time steps (also see lines 8-12 of column 8 in U.S. Patent 6,862,880)).

Re claims 21 and 22, in the method and device of Schnaibel et al., the first oxygen sensor (14) is chosen from among sensors of a sensor of lambda type, proportional oxygen sensor, nitrogen oxides detector, in which the oxygen-concentration measuring function is used (lines 6-12 of column 7 in U.S. Patent 6,862,880).

Re claim 23, in the method of Schnaibel et al., the first and second oxygen sensors are of different types (see lines 6-12 of column 7 in U.S. Patent 6,862,880).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schnaibel et al. as applied to claims 11 and 12, respectively, above, in view of design choice.

In the method of Schnaibel et al., a gradient of line 31 is typically obtained by computing a difference between an instantaneous voltage value at a current time step and a voltage value at

an intermediate and previous time step. A regeneration phase is determined to be completed when the gradient exceeds a threshold value (lines 8-12 of column 8 in U.S. Patent 6,862,880).

Schnaibel et al., however, fail to disclose that the gradient or an increase of the meaningful signal is detected by taking a difference between an instantaneous value of the meaningful signal and a sliding mean of the meaningful signal, and by comparing the difference with a threshold.

With regard to applicants claim directed to a specified means to compute a gradient of a curve or line, the specification of such would have been an obvious matter of design choice well within the level of ordinary skill in the art depending on design variables, such as a type of the sensor (i.e., if the sensor exhibits a sharp change, then computing a gradient by using a mean value of several data points is more meaningful). Moreover, there is nothing in the record which establishes that the specification of such presents a novel of unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

Response to Arguments

7. Applicant's arguments with respect to the references applied in the previous Office Action have been fully considered but they are not persuasive.

In response to applicant's argument that Schnaibel et al. fail to disclose or suggest "a second plateau of substantially constant level" (page 12 of the Applicant's Amendment), the examiner respectfully disagrees.

The text on lines 13-21 of column 8 in Schnaibel et al. (U.S. Patent 6,862,880) reads as follows: "*Alternatively, one may deduce that regeneration phase 32 has ended, when the*

gradient of output signal 31 of exhaust-gas sensor 14 initially exceeds a specifiable, first limiting value and then falls below a specifiable, second limiting value, i.e. the slope of output signal 31 falls below a particular value again. According to this alternative example embodiment, the transition of the curve of output signal 31 from the relatively steep slope to an constant level (a point of inflection of the curve of output signal 31) during oxygen regeneration phase 33 may be detected." (emphasis added by examiner). The phrase "plateau" is defined in a dictionary as: "*a region of little or no change in graphic representation.*" As can be seen in Figure 2 of Schnaibel et al., the region described as "an constant level" by Schnaibel et al. represents a region of leveling off of the curve (31) or a region of little or no change in the curve (31). Thus, based on the definition given by a dictionary, this "constant level" in Schnaibel et al. is indeed the "second plateau" as claimed in the pending application. Hence, Schnaibel et al. clearly disclose the claimed limitation in dispute.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Communication

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tu M. Nguyen

TMN

September 5, 2006

Tu M. Nguyen
Primary Examiner
Art Unit 3748

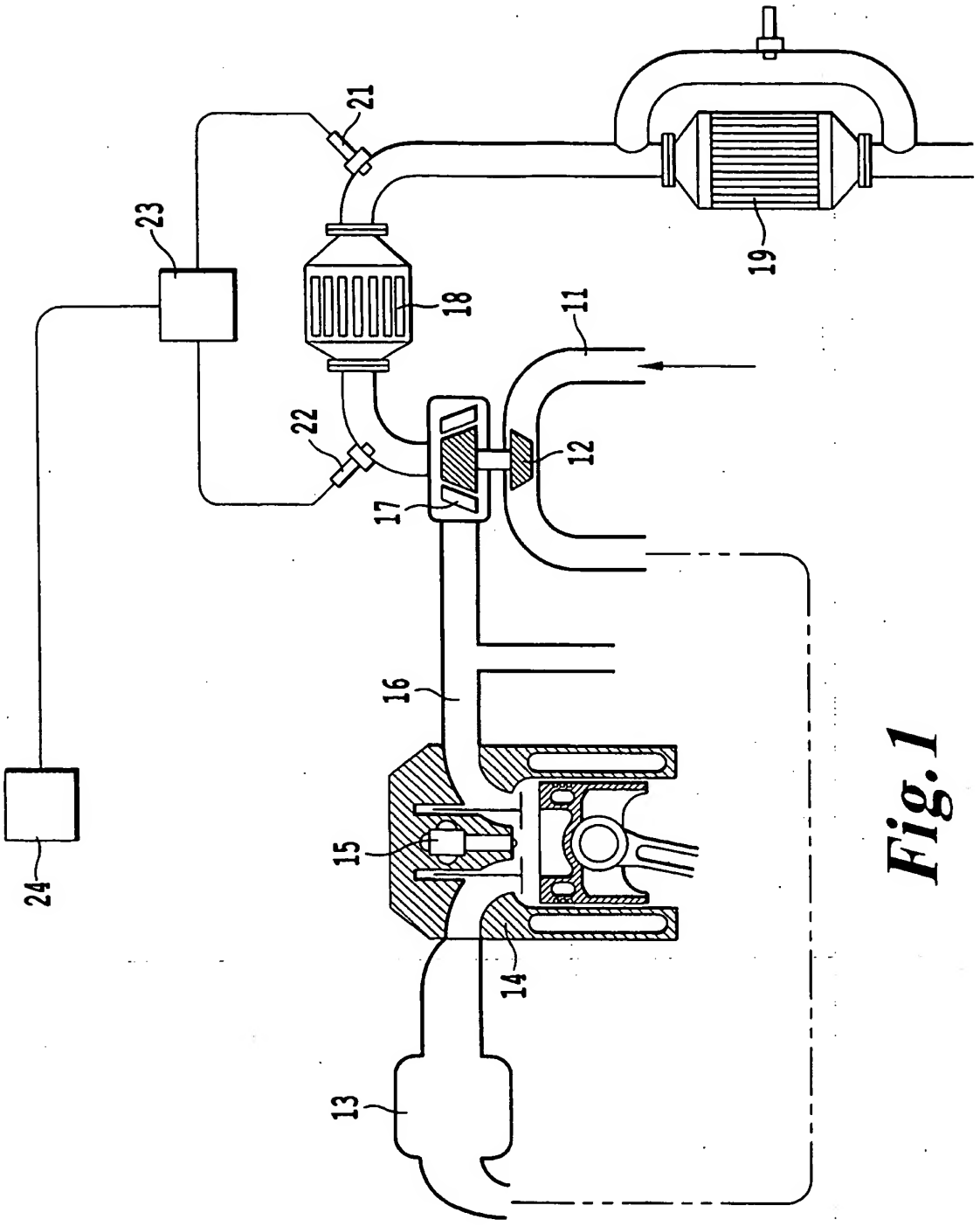

Fig. 1

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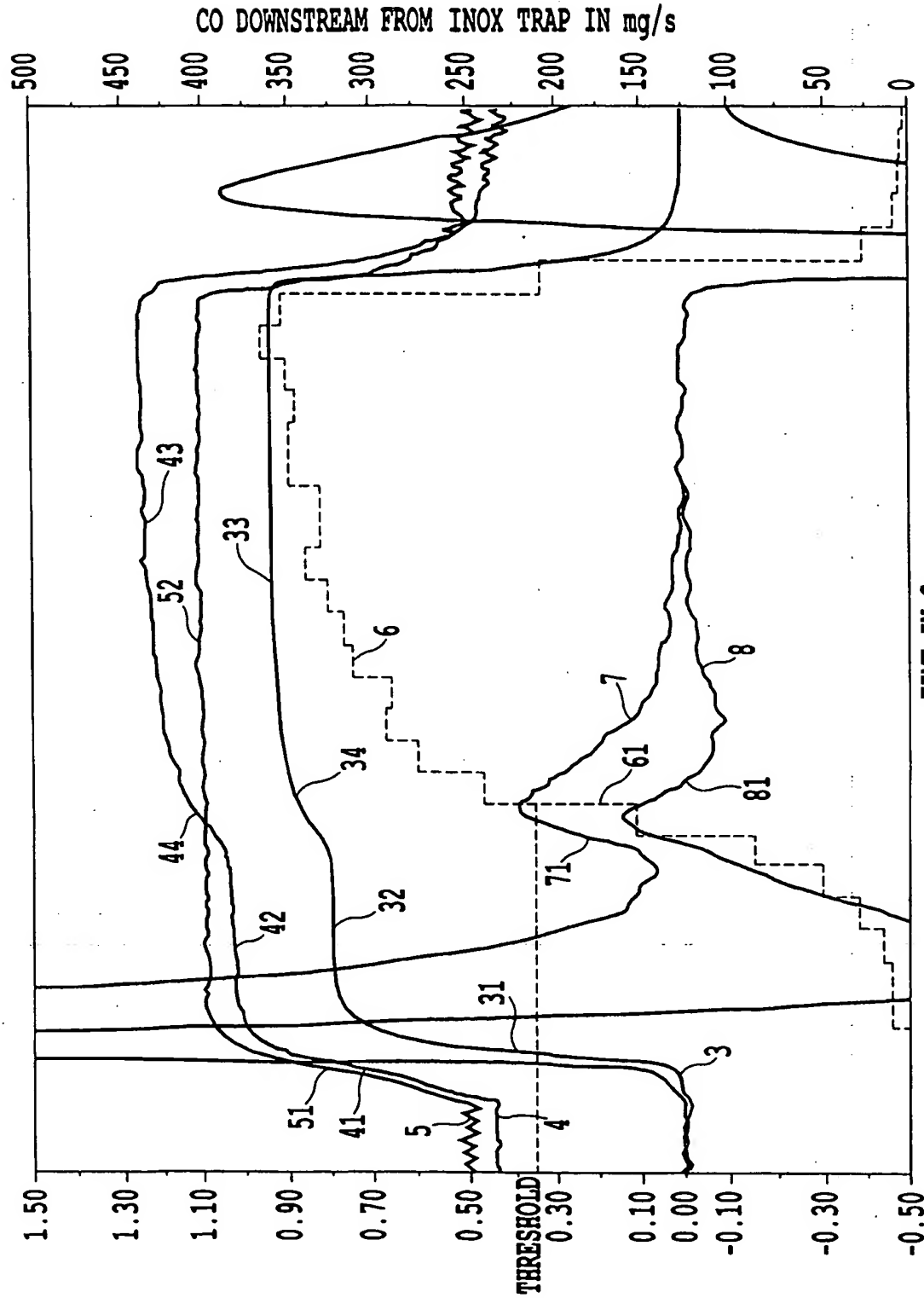

Fig. 2

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